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Shower for therapeutic use - pumps water to delivery head within enclosure from recirculation and discharge unit located below shower tray (Eng)

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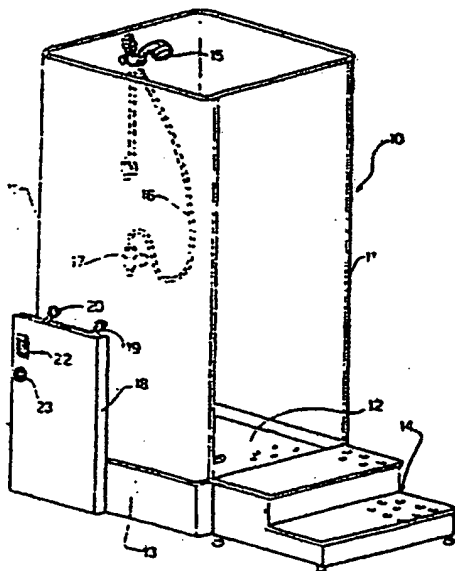
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The shower includes an enclosure (11) having a tray (12), and a water feed unit. A recirculation and discharge unit is positioned below the shower tray. The discharge unit includes a vessel interposed between the feed and discharge units. The water is drawn from the vessel, and is pumped to a delivery head (15) within the enclosure (11).

External to the enclosure a casing is fixed (13) having a panel (18) carrying two levers (19,20) for controlling the discharge of water. The panel also includes a current socket (22) and a knob for adjusting the thermostat positioned below the tray (12). A control board includes a button for controlling the heater and an indicator lamp, and a timer with an adjustment knob and audible buzzer.

USE/ADVANTAGE - Feeding, filtering, heating, recirculating and discharging aqueous treatment solution for skin disorders. Enables patient to comfortably expose any part to water jet to be treated. (6pp Dwg.No.1/3)

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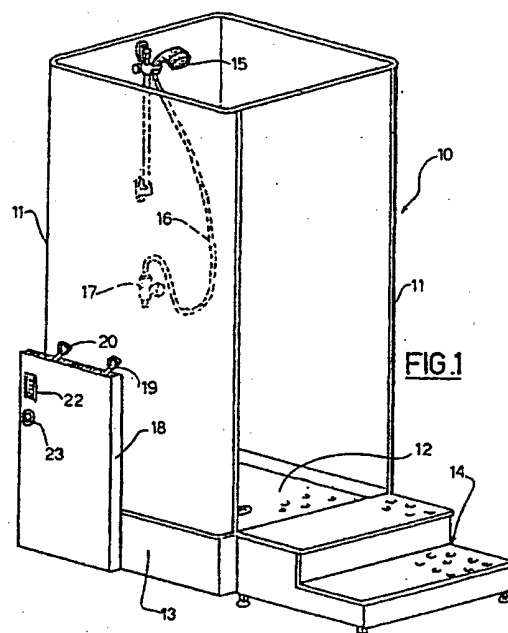
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(54) Shower for therapeutic use.

(57) A shower for therapeutic use is described, comprising an enclosure (11) with tray (12), and a water feed (33), recirculation (36, 37, 39, 40) and discharge (42) apparatus (30) which is positioned below the shower tray (12). The apparatus (30) is composed of:

- a vessel (28) interposed between the feed (33) and the discharge (42);
- means (35) for drawing water from the vessel (28) and pumping it to a delivery head (15) within the enclosure (11).

**FIG.1**

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This invention falls within the field of baths and cleaning devices for therapeutic purposes in general, and relates in particular to a shower incorporating an apparatus for feeding, filtering, heating, recirculating and discharging an aqueous treatment solution for skin disorders.

Various bathtubs with water recirculation systems are already commercially available, in which the patient lies to be subjected to various types of hydrotherapeutic treatment. These tub systems have however the drawback that the patient may experience difficulty in directly exposing the part to be treated to the water jet, sometimes because when the patient lies in the tub that part to be treated is resting on the tub bottom and he may therefore be compelled to assume an uncomfortable position which is difficult to maintain for the whole duration of the application.

An object of the invention is to obviate said drawback by providing a simple apparatus of economical construction and small overall area which enables the patient to comfortably expose to the water jet any part to be treated.

This and further objects and advantages, which will be apparent from the following description, are attained according to the invention by a shower for therapeutic use, comprising an enclosure with tray, characterised by comprising a water feed, recirculation and discharge apparatus which is positioned below the shower tray and comprises:

- a vessel interposed between said feed and said discharge;
- means for drawing water from the vessel and pumping it to a delivery head within the enclosure.

The structural and operational characteristics of a preferred but non-limiting embodiment of the shower according to the invention are described hereinafter with reference to the accompanying drawings, in which:

Figure 1 is a perspective overall view of the shower according to the invention;

Figure 2 is a partly exploded perspective view of a water feed, filtering, heating, recirculation and discharge apparatus positioned below the tray of the shower of Figure 1; and

Figure 3 is a perspective view of the electrical control panel for the apparatus of Figure 2.

With initial reference to Figure 1, a shower according to the present invention is indicated overall by the reference numeral 10. The shower enclosure comprises three lateral walls 11 resting on the perimeter of a substantially rectangular shower tray 12 upperly closing a metal base 13 forming a protection casing for a water feed, filtering, heating, recirculation and discharge apparatus, shown in Figure 2 and described hereinafter.

Access to the shower enclosure 11 is facilitated by two steps 14, of which the upper one terminates flush with the shower tray 12.

Within the enclosure there is a conventional height-adjustable water delivery head 15 connected by a hose 16 to a tap 17.

External to the shower enclosure and adjacent to one of its walls there is fixed to the casing 13 a panel 18 upperly carrying two levers 19 and 20 with which an assistant is able to control from the outside the arrival and discharge of the water respectively.

On the panel 18 there are also provided a current socket 22 and a knob 23 for adjusting a thermostat 27 positioned below the tray 12 and shown in Figure 2. With reference to Figure 2, the water feed, recirculation, filtering, heating and discharge apparatus 30 is positioned supported on a support frame 16 below the shower tray 12. A filter 24 with a washable cartridge 25 removable after removing a fixing screw 26 is positioned to correspond with the discharge hole (not shown) situated at the lowest point of the tray 12. The filter 24 communicates directly with a substantially parallel-piped vessel 28 on which the thermostat 27 is fixed. An electrical resistance element 29 with protection device 31 is inserted into the vessel, there also being provided on the upper part of the vessel a water level control device. Water is fed from the water mains into the vessel via a feed pipe 33, upstream of which there is a solenoid valve 34.

The apparatus 30 also comprises a delivery pump 35 which draws water from the base of the vessel via a rigid pipe 36 connected to a first entry hose 37, and feeds it to the delivery head 15 via a second exit hose 39 connected to a pipe extending towards the user. A further pump protection filter 41 is interposed between the entry hose 37 and the pump 35:

The rigid pipe 36 leaving the vessel is provided with a discharge branch 42 connected to drain. Discharge is achieved by a ball valve 43 connected into the branch 42 and controlled via a flexible cable system (not shown for simplicity) by the discharge control lever 19 situated on the panel 18 visible in Figure 1.

Likewise, water feed to the delivery head 15 is regulated by a ball valve 44 controlled by the lever 20 (Figure 1) via a flexible cable system (not shown).

With reference to Figure 3, in a position remote from the shower enclosure there is provided an electrical control board for the apparatus 30. This board, indicated overall by the reference numeral 50 and described briefly hereinafter, is connected electrically to the socket of the panel 18 by a cable 51. The board 50 comprises:

- a pushbutton for activating the resistance element 29, with relative indicator lamp 53;
- a pushbutton for activating the pump 35, with relative indicator lamp 55;
- a timer with adjustment knob 56 and relative acoustic buzzer 59 and indicator lamp 58;
- a pushbutton 59 for controlling the solenoid valve 34.

The electrical control board 50 and the water feed and discharge levers 19 and 20 are operated by an external operator while the patient undergoes the hydrotherapeutic treatment within the shower enclosure.

To operate the shower of the present invention, the external operator firstly presses the pushbutton 59 to open the solenoid valve 34 and allow water to flow into the vessel 28 through the pipe 33. When the optimum degree of filling has been achieved, as determined by the control device 32, the water flow is automatically interrupted and the pushbutton 52 is then pressed to operate the electrical resistance element 29. The indicator lamp 53 lights. The desired treatment temperature is selected by adjusting the knob 23. When this temperature is reached the indicator lamp 53 is extinguished. The required duration of treatment is set by adjusting the knob 56. At this point the patient enters the shower enclosure, on the tray of which there will already have been distributed the soluble salts suitable for the particular treatment underway, and the operator activates the pump 35 by pressing the pushbutton 56, after which he operates the lever 20 to provide water feed.

During operation, the water falling on the shower tray progressively dissolves the salts, returns to the vessel 28 via the filter 24 and is continuously drawn by the pump 35 through the pipe 36 and hose 37 and fed to the delivery head 15 via the hose 39, pipe 40 and hose 16. The patient can easily direct the water (or rather the aqueous solution) onto that part to be treated, while possibly resting comfortably seated on a stool (not shown) for the entire duration of the treatment, which on an average is between 10 and 15 minutes. If for some accidental reason the water in the vessel should fall to below the level of the resistance element 29 and leave it exposed, the protection device acts by interrupting power to the resistance element. In addition a pressure switch (not shown) incorporated into the pump switches it off to prevent it burning.

When the time set for the treatment has expired, the buzzer 57 advises the operator, who interrupts power to the resistance element 29 by pushing the pushbutton 52 and switches off the pump by pressing the pushbutton 54. He then halts the water feed by rotating the lever 20 (which closes the valve 44) and discharges the vessel by operating the discharge lever 19. This causes the

discharge valve 43 to open, so allowing water to flow through the pipe 36 and the discharge branch 42.

In an alternative embodiment (not shown) of the present invention, the times for the various water feed, filtration, recirculation, heating and discharge operations can all be preselected by a system for programming the activation times, by which the various functions of the apparatus (30) are automatically performed by appropriate connections. In this manner, after setting the treatment duration and desired temperature, no further manual action is necessary for starting and stopping the pump or feeding and discharging water.

The invention is not limited to the foregoing described embodiment, which is to be considered as purely illustrative of the best method of implementing the invention, and which is susceptible to modification in terms of the form, dimensions and arrangement of the parts and the constructional and operational details. The invention is intended to embrace all modifications included within its sphere, as defined by the following claims.

## Claims

1. A shower for therapeutic use, comprising an enclosure (11) with tray (12), characterised by comprising a water feed (33), recirculation (36, 37, 39, 40) and discharge (42) apparatus (30) which is positioned below the shower tray (12) and comprises:
  - a vessel (28) interposed between said feed (33) and said discharge (42);
  - means (35) for drawing water from the vessel (28) and pumping it to a delivery head (15) within the enclosure (11).
2. A shower as claimed in claim 1, characterised in that the apparatus (30) is provided with means (29) for heating the water within the vessel.
3. A shower as claimed in claim 1, characterised by comprising first manual control means (20) to enable water to be fed to the delivery head by the pumping means (35).
4. A shower as claimed in claim 1, characterised by comprising second manual control means (19) to enable water to be discharged from the vessel to drain.
5. A shower as claimed in claims 3 and 4, characterised in that said first and second manual means are arranged on a panel (18) external to the shower enclosure (11).

6. A shower as claimed in claim 1, characterised in that the apparatus (30) is contained within a rigid casing (13) flanked by access steps (14) to the enclosure.

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7. A shower as claimed in claims 1 and 2, characterised in that the apparatus (30) is connected to a control board (50) positioned in a remote position and comprising:

- means (54) for activating and deactivating the pumping means (35); 10
- means (52) for activating and deactivating the heating means (29);
- an adjustable timer (56);
- control means (59) for a solenoid valve (34) for the feed (33). 15

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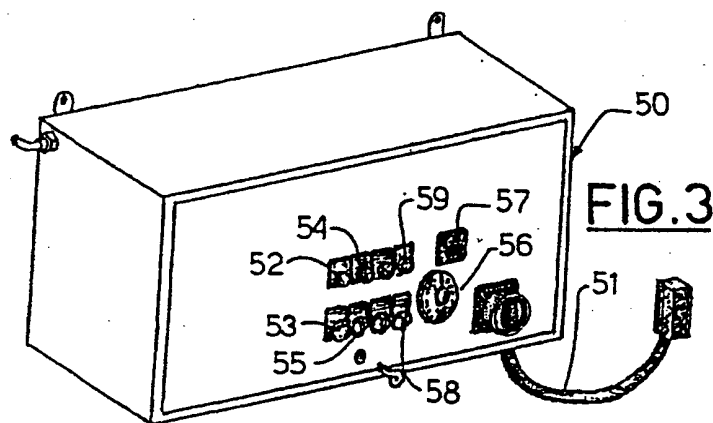
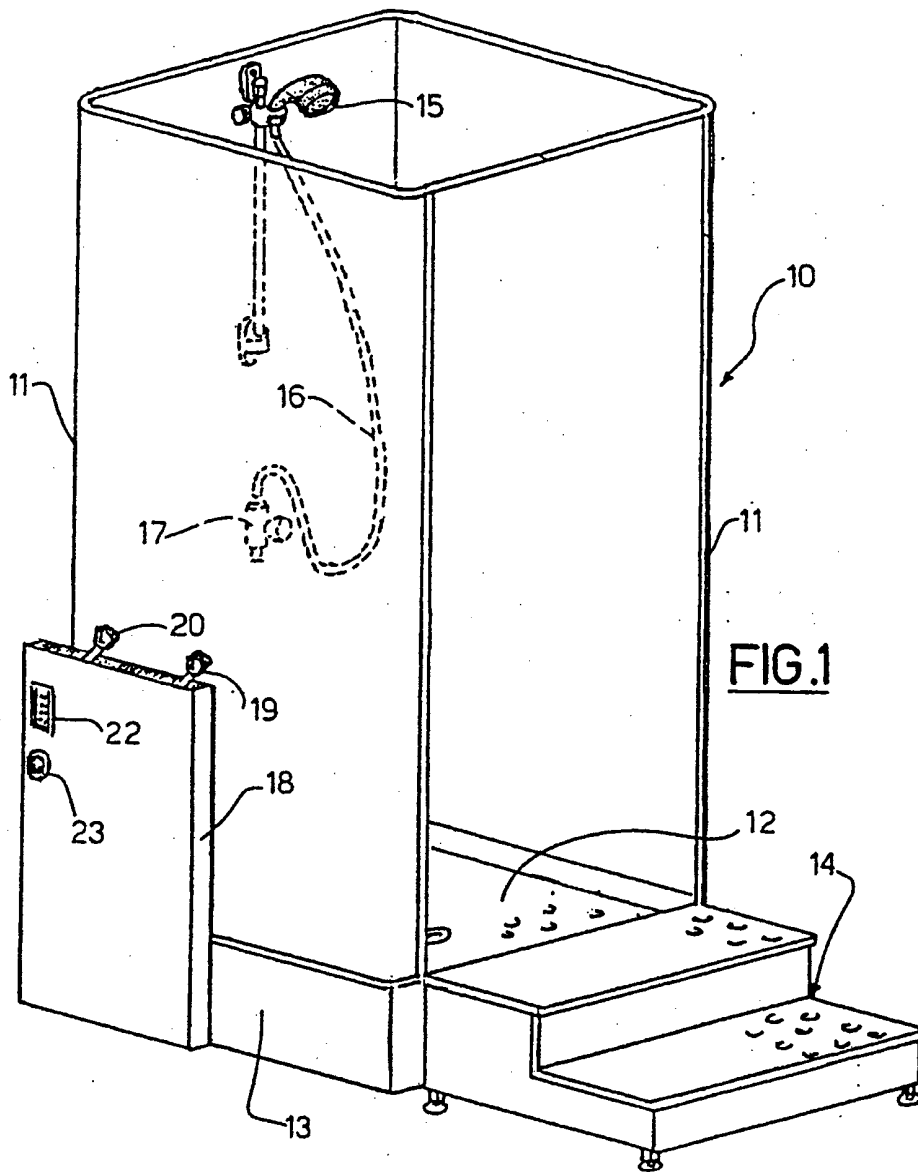
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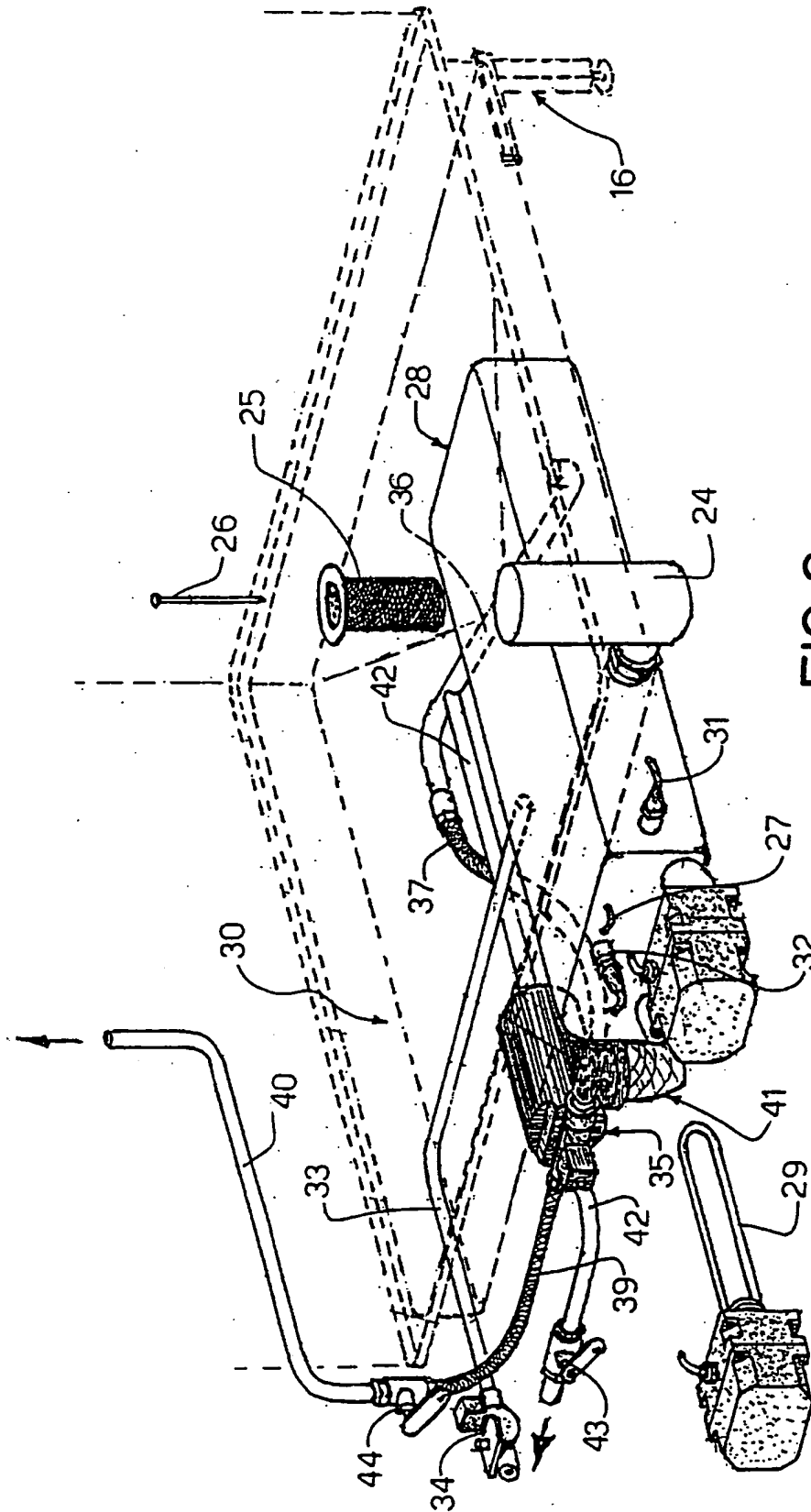


FIG. 2

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## EUROPEAN SEARCH REPORT

Application Number  
EP 93 11 8571

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. CL.5)
X	EP-A-0 046 475 (W HUNZICKER) * the whole document * ---	1-7	A61H9/00
X	DE-A-39 15 008 (H SCHULZE) * claims 2-8 * * figure 1 * ---	1-4	
X	DE-A-26 18 592 (H LEHMANN) * the whole document * ---	1-7	
A	EP-A-0 286 941 (JACUZZI EUROPE SPA) -----	7	
			TECHNICAL FIELDS SEARCHED (Int. CL.5)
			A61H
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 1 March 1994	Examiner Vereecke, A
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons ----- & : member of the same patent family, corresponding document	
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